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INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION

FOREST SERVICE

U. S. DEPARTMENT OF AGRICULTURE

FOREST INSECT CONDITIONS IN THE INTERMOUNTAIN REGION IN 1953

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SUMMARY

The most outstanding new development in the forest insect situation in the Intermountain Region in 1953 was the rapid development of an extensive and very severe outbreak of the pine butterfly on the Boise National Forest in Idaho. Plans have been made for airplane spraying of at least 169,000 acres of high-value ponderosa pine in 1954.

Spruce budworm defoliation of Douglas-fir and mixed fir stands was again recorded for about one-half million acres in south-central Idaho. Tree mortality is becoming evident in certain areas but a more serious loss has been in reduced growth and probable increased susceptibility to attack by bark beetles.

An appraisal survey of losses caused by the Douglas-fir beetle resulted in an estimate of 23,229,000 bd. ft. of Douglas-fir killed during the years 1948-52, inclusive, on the 41,118 acres surveyed on the Boise, Payette and Salmon National Forests. It is probable that not over one-tenth of the loss caused by this insect was included within the area surveyed. The infestation appeared to be decreasing in most areas in 1953.

The Black Hills beetle outbreak in southern Utah continues to be very aggressive and it is expected that about 8,000 trees will be treated in 1954.

The most encouraging aspect of the forest insect picture is the widespread concern and active interest being shown by representatives of industry and land managing agencies in support of more adequate surveys and research. Organization of the Southern Idaho Forest Pest Action Council in the fall of 1953 did much to facilitate obtaining complete information regarding the extent of the pine butterfly infestation and the need for control work.

CONTROL ACCOMPLISHMENTS DURING 1953

The major insect control project in Region 4 during 1953 was conducted on the Dixie National Forest and in the adjacent Bryce Canyon National Park in an effort to reduce losses being caused by the Black Hills beetle in ponderosa pine. A total of 5,957 trees were treated in the Forest and Park, as compared with 2,914 in 1952 and 5,435 in 1951. This outbreak is still very aggressive and additional control work will be done in 1954.

An infestation by the southwestern pine beetle in ponderosa pine seriously threatened recreational and timber values on the Charleston Mountain Division of the Nevada National Forest, near Las Vegas. About 260 trees were treated in May and June.

Localized infestations of the mountain pine beetle in lodgepole pine were treated on the Sawtooth and Targhee National Forests in Idaho in an effort to prevent widespread outbreaks.

Airplane spraying with DDT to control the fir needle miner in about 1,000 acres of white fir was conducted by the National Park Service in Bryce Canyon National Park in July. The infestation was greatly reduced by the spraying done in July 1952 but it was considered advisable to repeat the treatment in 1953 to insure keeping the insect population at a low level and thus give the trees a chance to recover some of their vigor. The affected stand is located along the main road through the Park. Many of the trees are nearly dead as the result of repeated defoliation in recent years.

Airplane spraying of 400 acres of pine butterfly infestation in ponderosa pine on the Boise National Forest in Idaho was done on an experimental basis. It was apparent that extensive control operations would be needed in 1954 and no previous information was available as to whether DDT spray would be effective against this insect. The results were satisfactory.

RESULTS OF THE 1953 FOREST INSECT SURVEY PROGRAM

Douglas-fir Beetle In Douglas-fir

General observations during the past several years have indicated that severe and extensive losses are being caused by the Douglas-fir beetle, Dendroctonus pseudotsugae. An aerial survey in the fall of 1952 disclosed a total of at least 140,000 acres of severe infestation on the Boise, Payette and Salmon National Forests in Idaho, in addition to a much larger area of scattered infestation in mixed types. In the spring of 1953, ground crews made an appraisal survey of some of the more heavily infested stands in areas where there appeared to be some chance of making salvage sales. Results of this survey were as follows:

National Forest	Acres surveyed	Volume Infested (Year of Attack) 1948-50	1951	1952
			(M bd. ft.)	
Boise	24,070	6,954	5,165	2,679
Payette	9,960	2,356	1,398	2,004
Salmon	7,088	448	1,571	854
Total	41,118	9,758	7,934	5,537

It is estimated that the total amount of loss caused by the Douglas-fir beetle in Region 4 since 1948 has been at least ten times the total indicated by this partial survey.

Several of the areas surveyed in June were examined again in August, after the 1953 attacks had been completed. This examination was not intensive enough to permit an estimate of the amount of loss in 1953 but it was apparent that the infestation is declining in most areas. However, the present widespread defoliation of Douglas-fir by the spruce budworm is likely to be followed by an increase in activity by the bark beetle. Thus far, there does not appear to be any correlation between losses being caused by the two insects. Much of the beetle infestation, especially on the Payette Forest, is in areas where the budworm is not epidemic.

Black Hills Beetle In Ponderosa Pine

The fall survey of the Dixie National Forest and Bryce Canyon National Park resulted in estimates of 5,745#724 new attacks by Dendroctonus ponderosae in the Forest and 1,630#408 in the Park. In view of the current aggressiveness of this outbreak, as evidenced by heavy attacks and abundant broods in the infested trees, it is believed that control achievements have been very good in spite of the fact that it has not been possible to reduce the number of new attacks. The loss would undoubtedly have been many times that which has occurred if direct control had not been applied during the last three years. It is probable that at least two more seasons of control work will be needed before the present outbreak begins to decline.

Western Pine Beetle and Mountain Pine Beetle In Ponderosa Pine

No serious infestations by Dendroctonus brevicomis and D. monticolae in ponderosa pine are known at the present time. The infestation near Deadwood Reservoir on the Boise National Forest increased in 1953 but the area is now being logged and no direct control action appears to be warranted. There was some indication of a general and very widespread increase in the number of infested trees on both the Boise and Payette Forests, especially in stands

affected by the needle cast disease, but the scattered nature of the infestation is such that direct control is not practical. Most of the loss is being caused by the western pine beetle in overmature stands. These stands should be logged as rapidly as possible.

Mountain Pine Beetle In Lodgepole Pine

Losses caused by Dendroctonus monticolae in lodgepole pine remained at a relatively low level except on parts of the Wasatch and Ashley National Forests where there appeared to be an increase. No appraisal survey was conducted on these forests in 1953 and we are unable to estimate the amount of current loss. A localized new infestation was reported on the Targhee National Forest, with an estimated 200 infested trees. The Sawtooth National Forest has also estimated about 200 infested trees as being present in campground and other recreational areas.

Southwestern Pine Beetle In Ponderosa Pine

A fall survey of the Charleston Mountain infestation, near Las Vegas, resulted in an estimate of 150 trees infested by Dendroctonus barberi, to be treated in 1954. Most of these trees are within or closely adjacent to areas used for summer homes, campgrounds, or other recreational purposes.

Engelmann Spruce Beetle In Engelmann Spruce

No threatening infestations of the spruce beetle, Dendroctonus engelmanni, in Region 4 are known at the present time, although the insect is present in stumps and cull logs in all spruce logging areas. Such areas should be watched for evidence that the beetles may have increased to the point where they will begin to attack living trees. This is most likely to happen during the first year or two following the completion of a logging operation.

Pine Butterfly On Ponderosa Pine

The pine butterfly, Neophasia menapia, has been increasing in abundance on the Boise National Forest for several years, as noted in our reports for 1951 and 1952. In the spring of 1953 it was found that overwintered eggs were present in large numbers on trees that were being felled in sale areas near the Beaver Creek Guard Station. Arrangements were made for the experimental spraying of about 400 acres, as noted above. Observations later in the season revealed that the infestation was much more severe and extensive than first suspected. An aerial survey during the peak of the flight of butterflies resulted in an estimate of at least 130,000 acres where the presence of large numbers of butterflies indicated a probable need for control work in 1954. This was followed by an egg survey by ground crews furnished by members of industry, Southern Idaho Timber Protective Association, State of Idaho Department of Forestry, and the Bureau of Land Management. This survey covered

extensive areas surrounding the area that was known to be infested. No additional areas of heavy infestation were discovered but the boundaries of the known infestation were expanded to include stands where eggs were present in numbers sufficient to cause light defoliation in 1954 and perhaps serious damage in 1955, with a revised total of an estimated 169,000 acres.

A detailed report of the situation, including estimates of the timber values threatened by the outbreak, was prepared in cooperation with the agencies listed above and was used in requesting funds for applying control by airplane spraying in 1954. Funds for this project have been provided and spraying is expected to begin early in June.

Spruce Budworm On Douglas-fir, True Firs and Spruce

Defoliation by the spruce budworm, Choristoneura fumiferana, was again moderate to severe over about one-half million acres on the Boise, Payette and Salmon National Forests. There has still been no extensive killing of stands but many intermediate and overtopped trees are dying or dead. The most severe damage observed during an aerial survey last fall is in the Big Creek drainage within the Wilderness Area on the Payette Forest.

There was a decline in the budworm larval population in most of the areas examined on the Sawtooth and Boise Forests as compared with 1952 but a high percentage of the population reached maturity and moths were very abundant early in August. It is therefore expected that there will be an increase in the severity of defoliation in 1954.

Some of the heaviest infestations on the Boise Forest are in mixed stands within the area that is to be treated for control of the pine butterfly. Part of the spraying for control of the butterfly can not be timed for most effective control of the budworm but it is hoped that the budworm population will be reduced enough to prevent serious defoliation in 1954 on the areas that are sprayed. It is unfortunate that funds are not available for control of the budworm on other areas, especially on the Payette Forest where many of the infested stands contain a rather high proportion of good quality grand fir.

Fir Needle Miner On White Fir

The fir needle miner, Epinotia meritana, infestation in white fir in Bryce Canyon National Park was much reduced in 1953 as compared with 1952. However, because of the weakened condition of the trees, and in an attempt to prevent a probable build-up in 1954, the area was airplane sprayed with DDT in July. It is not expected that further treatment will be needed in 1954.

Lodgepole Needle Miner On Lodgepole Pine

Infestations by the lodgepole needle miner, Recurvaria milleri, in lodgepole pine stands on the Cassia Division of the Sawtooth and the Porcupine District of the Targhee National Forests have completely disappeared. The reason for this disappearance is unknown.

ORGANIZATION OF THE SOUTHERN IDAHO FOREST PEST ACTION COUNCIL

In September 1953 a meeting of representatives of the lumbering industry and state and federal agencies was held in Boise, Idaho to consider the pine butterfly and spruce budworm problems and to formulate a plan of action for obtaining more complete information as to the areas and values involved. This meeting resulted in organization of the Southern Idaho Forest Pest Action Council. Members of the Council were extremely helpful by furnishing men and transportation to assist in the pine butterfly egg survey and by helping to plan the needed control program. Several subsequent meetings have been held for the purpose of discussing results of the butterfly egg survey, the need for control spraying in 1954, possibilities of salvage logging to remove timber damaged by the butterfly, budworm, bark beetles, and needle cast disease, and the need for access roads to permit salvage operations and more rapid harvesting of stands of overmature timber.

It is believed that this organization will continue to be very helpful in appraising forest pest conditions in Southern Idaho and in furthering desirable forest practices and action programs that will help to prevent or suppress outbreaks of such pests. A similar organization to consider such problems in Utah would be very desirable.

SHORTCOMINGS IN OUR PRESENT FOREST INSECT CONTROL PROGRAM

The greatest weakness in our present forest insect control program in the Intermountain Region is the lack of research on problems peculiar to this region. Control action and methods are necessarily based on information that has been developed in other regions and may not always be the most effective or efficient for our conditions. Expenditures of large sums of money for control work that is not based on adequate research is obviously poor economy even though the results may appear to be satisfactory.

There is also need for considerable expansion of the cooperative detection and appraisal program. An intensified program of training forest officers and other woods workers in the recognition of early symptoms of increases in insect abundance would do much to insure detection of incipient outbreaks. Establishment of a large series of permanent observation plots in all forest types throughout the Region would be valuable for providing data on fluctuations in insect abundance and loss of timber. After the plots were once established, annual examinations could be made by cooperating personnel without requiring very much time or expense on the part of any individual.